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US ARMY MISSION AND CHALLENGES

Remarks by

GEN MAXWELL R. THURMAN

at

AUSA Winter Defense Symposium

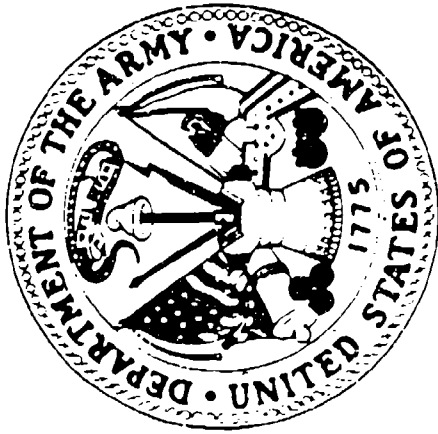
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WINTER DEFENSE SYMPOSIUM

AUSA — REDCOM

26 FEB 86

GENERAL MAXWELL R. THURMAN

VCSA, U.S. ARMY

**SUPPORT
NATIONAL STRATEGY**



DETER ATTACK



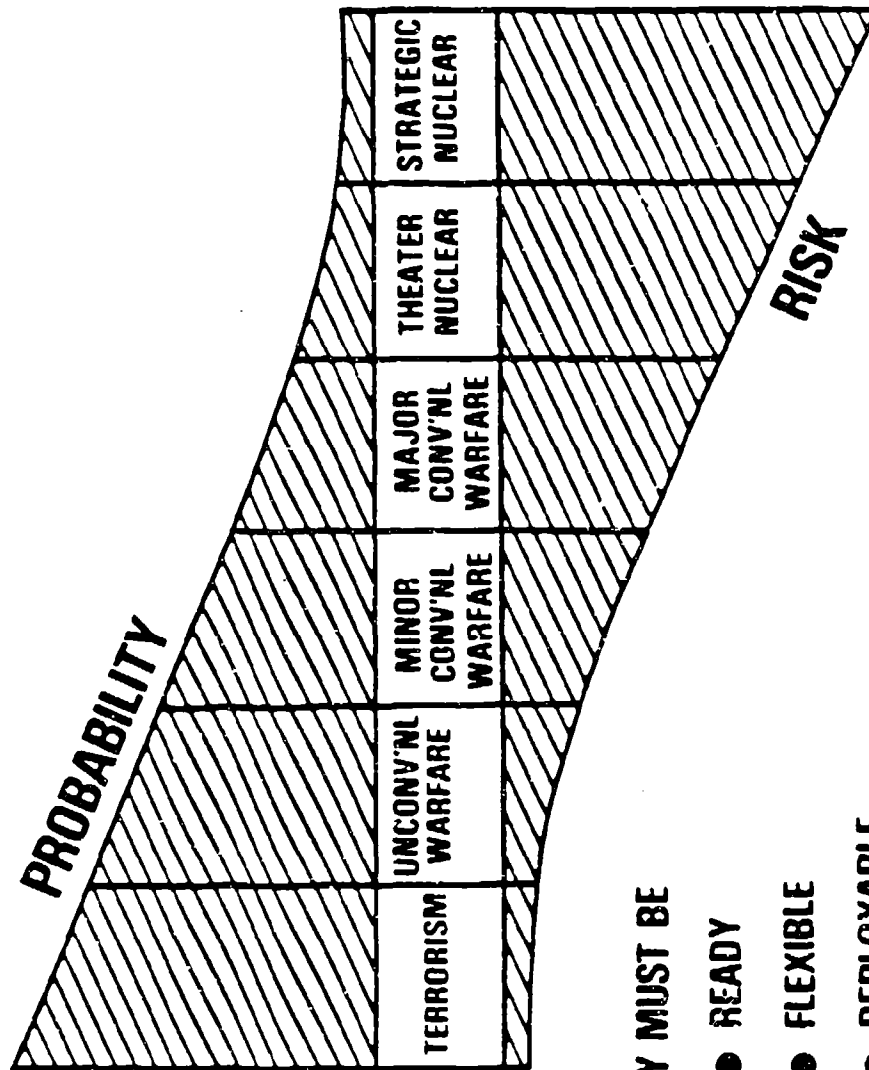
**DEFEAT
ANY ENEMY**

**REACT
GLOBALLY**

U.S. ARMY MISSIONS

- **DEFEAT A WARSAW PACT ATTACK ON NATO AND MAINTAIN ITS TERRITORIAL INTEGRITY AND SECURITY**
- **DENY SOVIET CONTROL OF THE PERSIAN GULF AND ASSOCIATED OIL RESOURCES**
- **DEFEND VITAL U.S. INTERESTS IN THE PACIFIC**
- **SUPPORT ALLIES IN ASIA, LATIN AMERICA AND AFRICA**
- **MAINTAIN A STRATEGIC RESERVE CAPABLE OF COUNTERING THREATS IN THE WESTERN HEMISPHERE; AND**
- **RESPOND TO OTHER THREATS TO U.S. INTERESTS ANYWHERE IN THE WORLD**

WHY THE ARMY ...

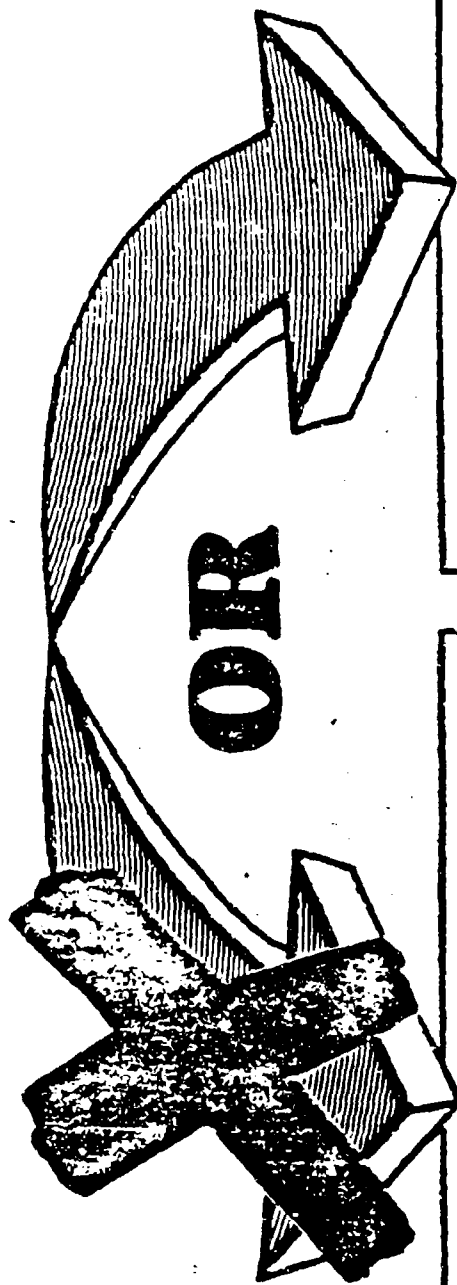


THE ARMY MUST BE

- READY
- FLEXIBLE
- DEPLOYABLE
- SUSTAINABLE

ACROSS THE SPECTRUM

FUNDAMENTAL CHOICES



- EXPAND FORCE LEVELS AND MILITARY END STRENGTH
- ACCEPT AN ARMY WITH OLDER/ LESS THREAT CAPABLE EQUIPMENT
- SLOW MODERNIZATION AND EQUIPMENT FILL RATES
- REDUCE SUSTAINABILITY BUILD-UP

- MAINTAIN FORCE LEVELS AND MILITARY END STRENGTH TO PROTECT
 - READINESS INITIATIVES AND SUSTAINABILITY
 - MINIMUM ESSENTIAL MODERNIZATION

FORCE STRUCTURE AZIMUTHS

REFOCUS ON CORPS

WARFIGHTING CAPABILITY



HEAVY FORCES

DIVISION 86 REFINEMENTS

- CONTINUE MODERNIZATION PROCESS
- STREAMLINE DIV 86 DESIGNS
- CONTINUE BDE ROUNDOUT

LIGHT FORCES

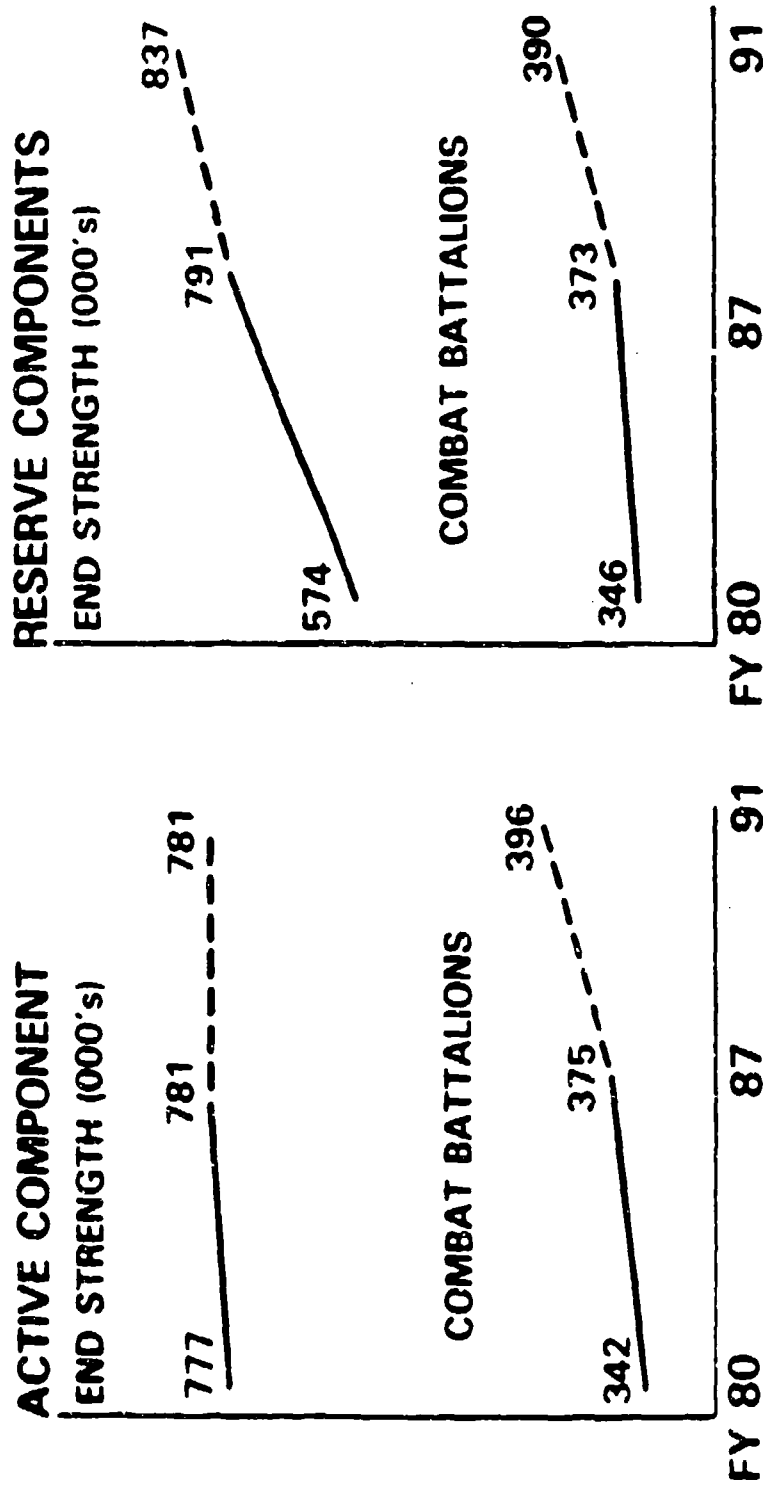
RESTRUCTURING TO INCREASE CAPABILITY

- INCORPORATE 10K DESIGN
- SUSTAIN HIGH TECH EFFORT
- ENHANCE SOF/RANGER FORCES

EXPANDED AVIATION STRUCTURE

IMPROVED SUSTAINABILITY

GROWTH OF COMBAT CAPABILITY



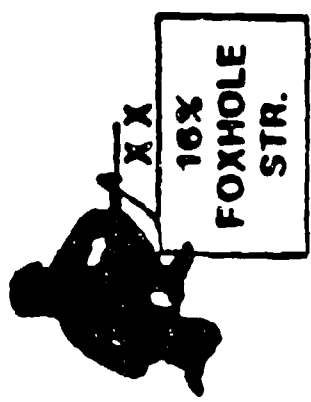
INITIATIVES

- PRODUCTIVITY ENHANCING TECHNOLOGY
- ORGANIZATIONAL MODERNIZATION
- HEADQUARTERS REDUCTIONS
- RESERVE COMPONENT GROWTH
- CIVILIAN SUBSTITUTION, CONTRACTING
- HOST NATION SUPPORT, CONTINGENCY CONTRACTING

RESEARCH AND DEVELOPMENT GUIDANCE

- **LIGHTER EQUIPMENT**
- **DOWNSIZED EQUIPMENT**
- **LESS PEOPLE INTENSIVE**
- **FULL HUMAN FACTORS INTEGRATION**
- **NON DEVELOPMENTAL ITEMS WHEN POSSIBLE**
- **REDUCE SUPPORT COSTS**
- **INCREASE READY RATES**
- **PROGNOSTIC MAINTENANCE**
- **APPROPRIATE TESTING**
- **SPARE PARTS COSTING AND AVAILABILITY**

INF DIV
18,486

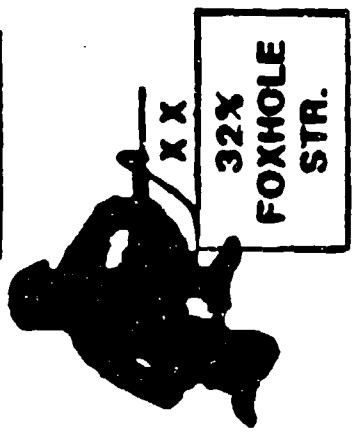


1502 SORTIES

19 DAYS

CLOSURE TIMES

10K LT DIV
10,700



497 SORTIES

6 DAYS



**RIGHT
STUFF**

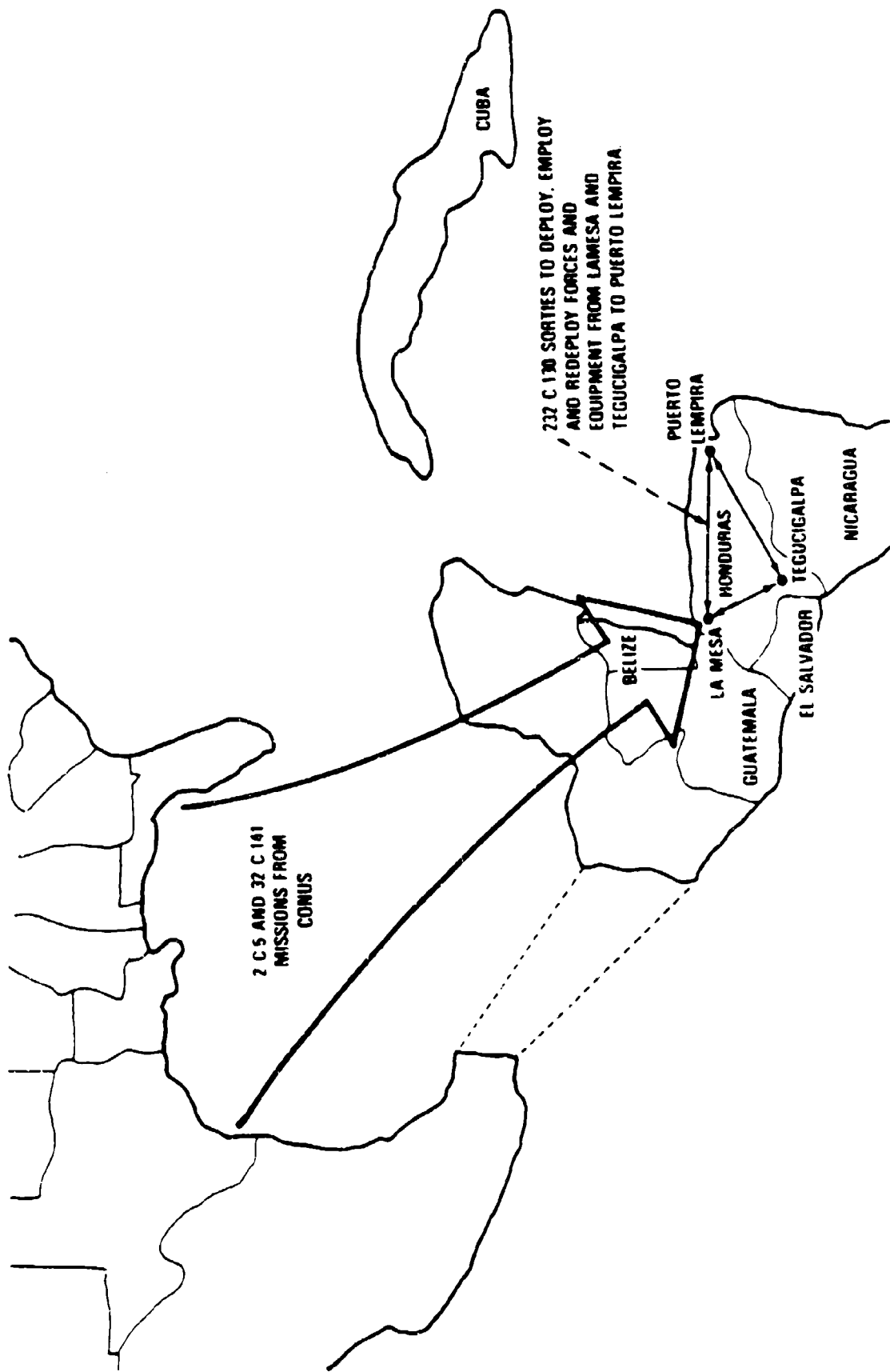
**RIGHT
PLACE**

**RIGHT
TIME**

TOTAL COST REDUCTION \$3B

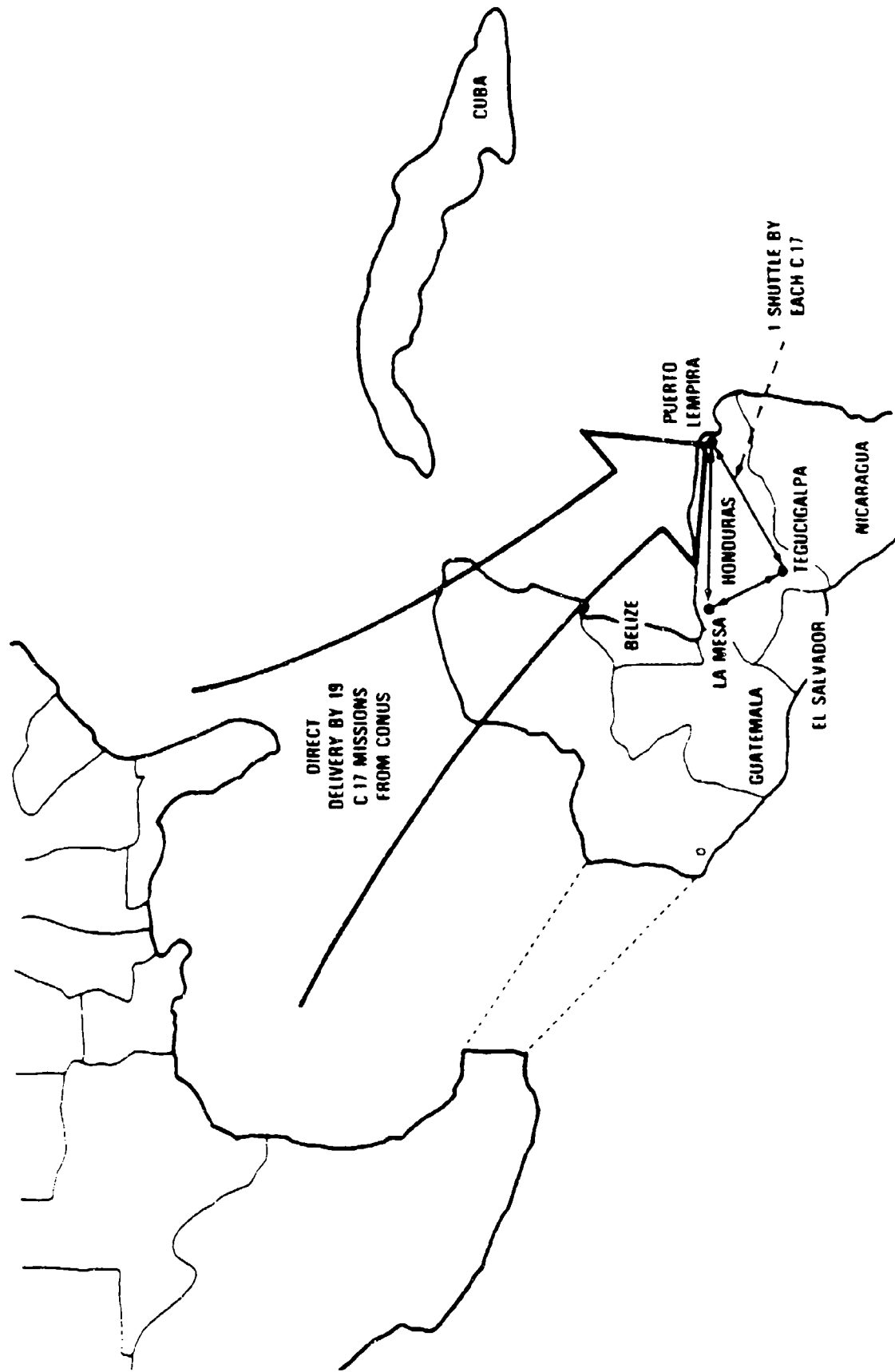
AHUAS TARA 83

HOW IT WAS DONE



AHUAS TARA 83

HOW IT COULD HAVE BEEN DONE



DOWNSIZE EQUIPMENT

TACFIRE

COMPUTER



DISPLAY



SUPPORT



SUPPORT



**COUNTER
FIRE**



TACFIRE II

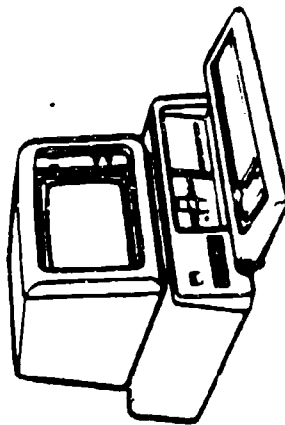
**COMPUTER
& DISPLAY**



**COUNTER
FIRE**



TACFIRE III



SYSTEM PERFORMANCE FORMULA

$$P_M = (P_A) (P_O) (P_P)$$

$$P_M = (P_A) (P_O) (P_P)$$

| <u>SYSTEM</u> | <u>AVAILABILITY</u> | <u>OPERABILITY</u> | <u>PERFORMANCE</u> |
|--------------------|--|---|--|
| <u>PERFORMANCE</u> | <ul style="list-style-type: none"> ● MAINTENANCE ● RELIABILITY ● SPARES | <ul style="list-style-type: none"> ● HUMAN CAPABILITY ● SKILL ● TRAINING | <ul style="list-style-type: none"> ● CEP ● P_K |

REQUIREMENT MAN PORTABLE ANTI-TANK WEAPON

**"PROBABILITY OF KILL OF FUTURE SOVIET TANK WILL BE
.5 AT 1500 METERS IN CL-4 OBSCURANT CONDITIONS
WITH MAN IN THE LOOP"**

NON-DEVELOPMENTAL ITEM

A SOLUTION FOR:

- **TECHNOLOGY AND THREAT MOVING FAST**
- **TRADITIONAL ACQUISITION PROGRAMS LONG AND EXPENSIVE**
- **FIELD EQUIPMENT GENERATIONS BEHIND WHAT IS AVAILABLE**

THE MSE STORY

SEPTEMBER 1983 — 5000 PEOPLE
— \$5B IN COMMO EXPENDITURE
DECEMBER 1985 — AWARDED CONTRACT

CONTRACT STRATEGY:

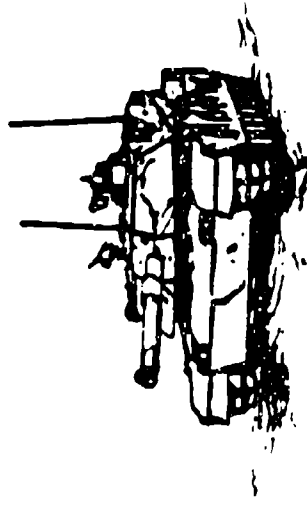
- DEMONSTRATION IN FIELD
(FRENCH IN FRANCE, BRITISH IN FRG) (GAO, AAA)
- NO R&D
- FIELDING BY CORPS (AC-NG-RC)
- FIELDING BY BATTALION SETS
(INCL) VEHICLES, GENERATORS, SPARES
- SUSTAINMENT AS PART OF CONTRACT (15 YEARS)
- FIXED PRICE CONTRACTS
- TEST IN UNIT IN FIELD BEFORE FINAL PAYMENT

PROGNOSTIC MAINTENANCE

HIGH PERFORMANCE AIRCRAFT



APPLICATIONS



- AUTOMATIC SYSTEM REPORTING OF PERFORMANCE DEGRADATION
- DISPLAY OF SYSTEM PERFORMANCE AND SYSTEM STATUS

STATE OF THE ART

- AUTOMATIC FAULT DETECTION AND ISOLATION
- AUTOMATICALLY REPORTS PERFORMANCE DEGRADATION
- FLIGHT AND FAILURE DATA RECORDED



- EXHAUST TEMPERATURE MONITORING TO PREDICT PERFORMANCE DEGRADATION
- AFTER OPERATIONS EVALUATION TO MECHANICS WITH FAULTS ISOLATED AND REPORTED

DIGITAL DATA READ-OUT
AND ON-BOARD RECORDING

SUSTAINABILITY AND SPARES

- **SQUAD AUTOMATIC WEAPON -- STOPPED FIELDING -- AMMO**
- **TAC FIRE -- STOPPED -- SPARE PARTS**

NEW FOCUS

**-- M1A1 -- 120 MM TANK GUN ... 60 DAYS AMMO
30 DAYS SPARES**

**-- 20 NEW SYSTEMS ... CRITICAL SPARE COMPONENTS
974 LINES ON ORDER END FY 86 = 28 DAYS**

**AVIATION FLEET ... CRITICAL SPARE PARTS
18,210 PARTS ON HAND END FY86 = 15 DAYS**

CRITICAL PARTS PROGRAM

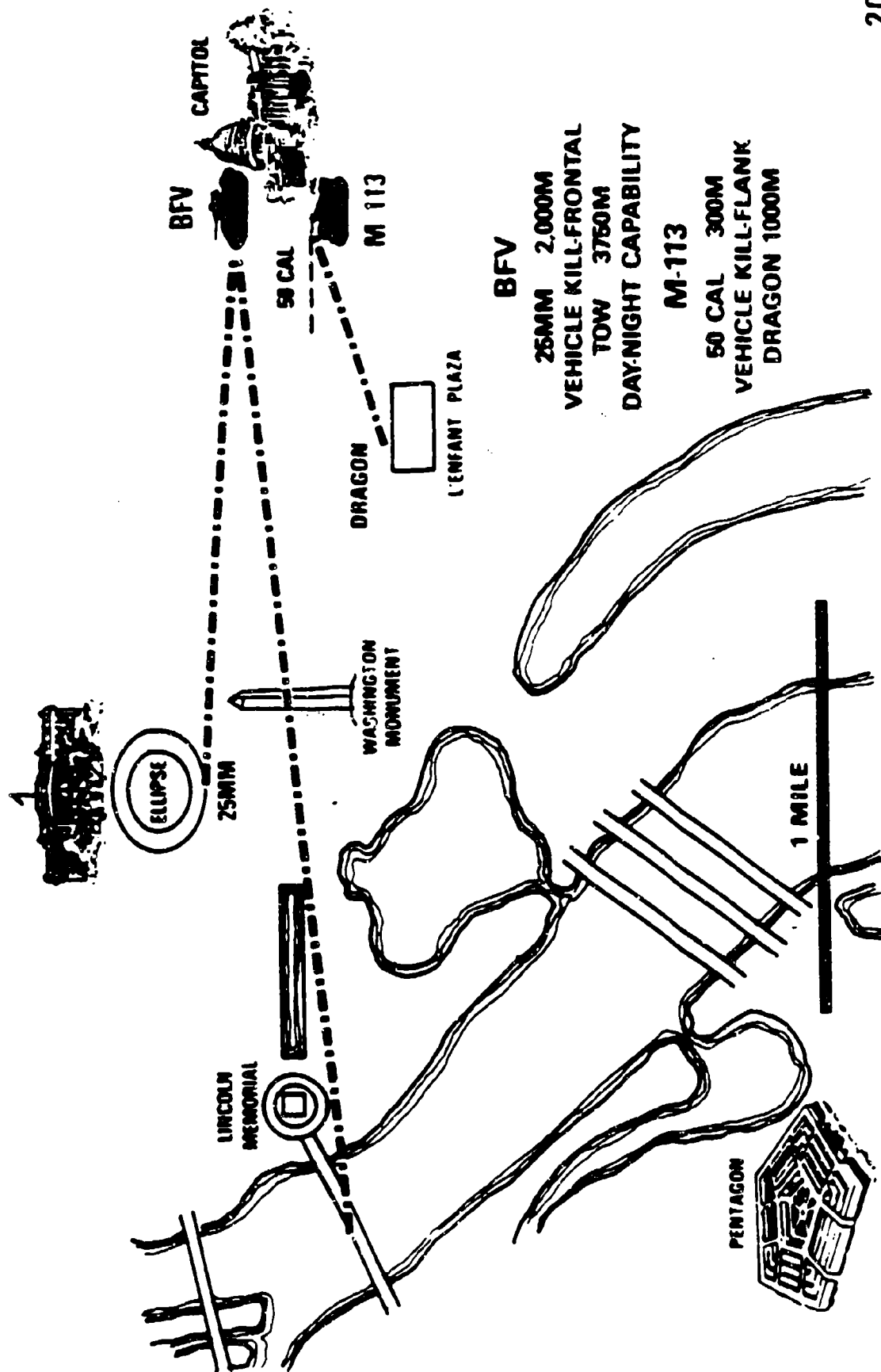
| <u>AIRCRAFT</u> | <u>CRITICAL PARTS</u> | <u>TOTAL PARTS</u> |
|-----------------|-----------------------|--------------------|
| UH-60 | 196 | 15,000 |
| CH-47 | 207 | 28,811 |
| UH-1 | 89 | 5,012 |
| AH-1 | 103 | 13,277 |
| OH-58 | 141 | 10,991 |
| AH-64 | 101 | 28,913 |

CRITICAL PARTS DEFINED

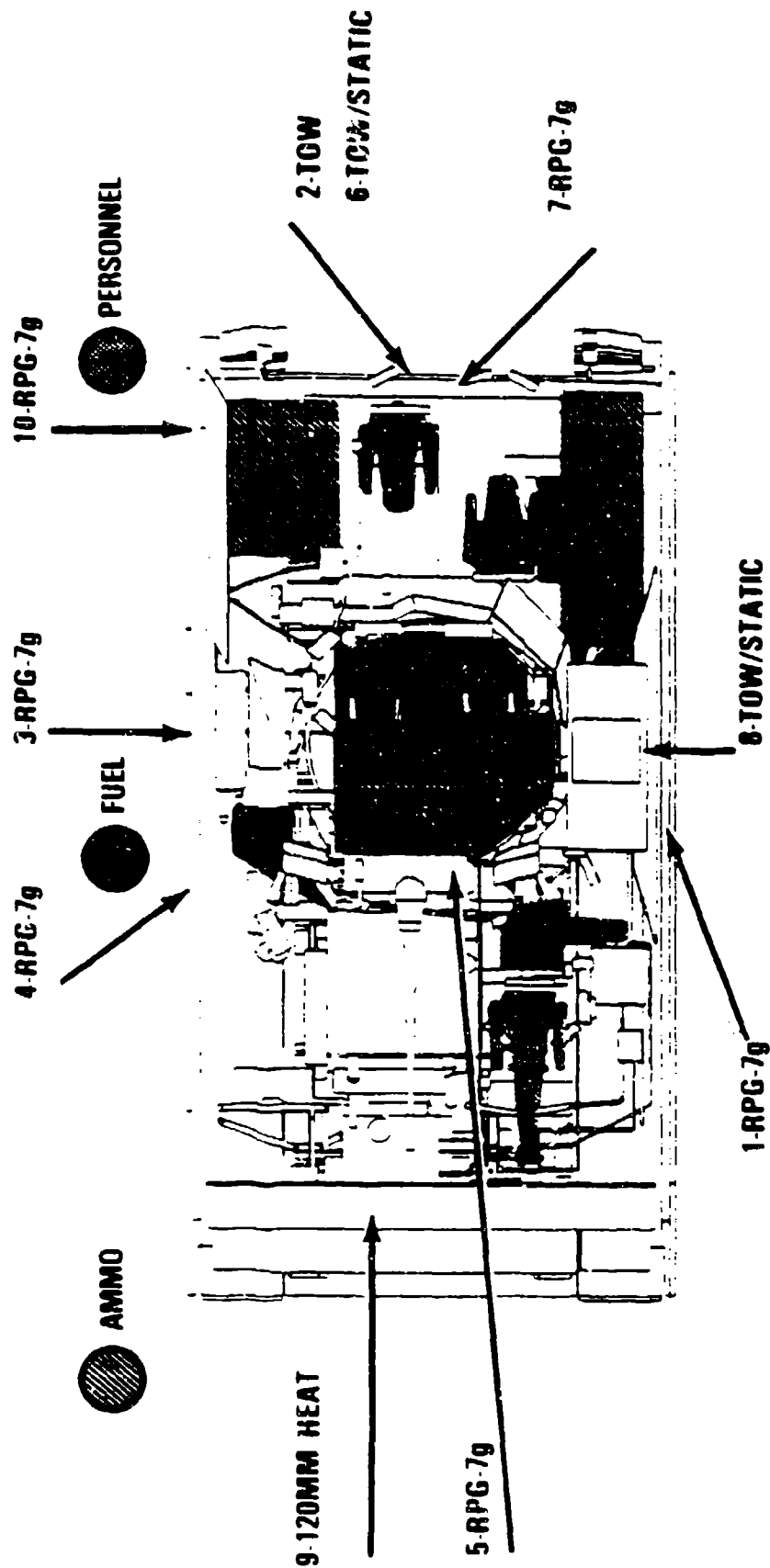
PRIMARY FAILURE OR MALFUNCTION AFFECT THE
SAFE OPERATION OF THE AIRCRAFT

MAXIMUM EFFECTIVE RANGES

M-113 - BFV



SHOTS FIRED INTO BRADLEY (FULLY LOADED)



EFFECTS ON AMMO

SHOTS - 1
2
5
6
7
10

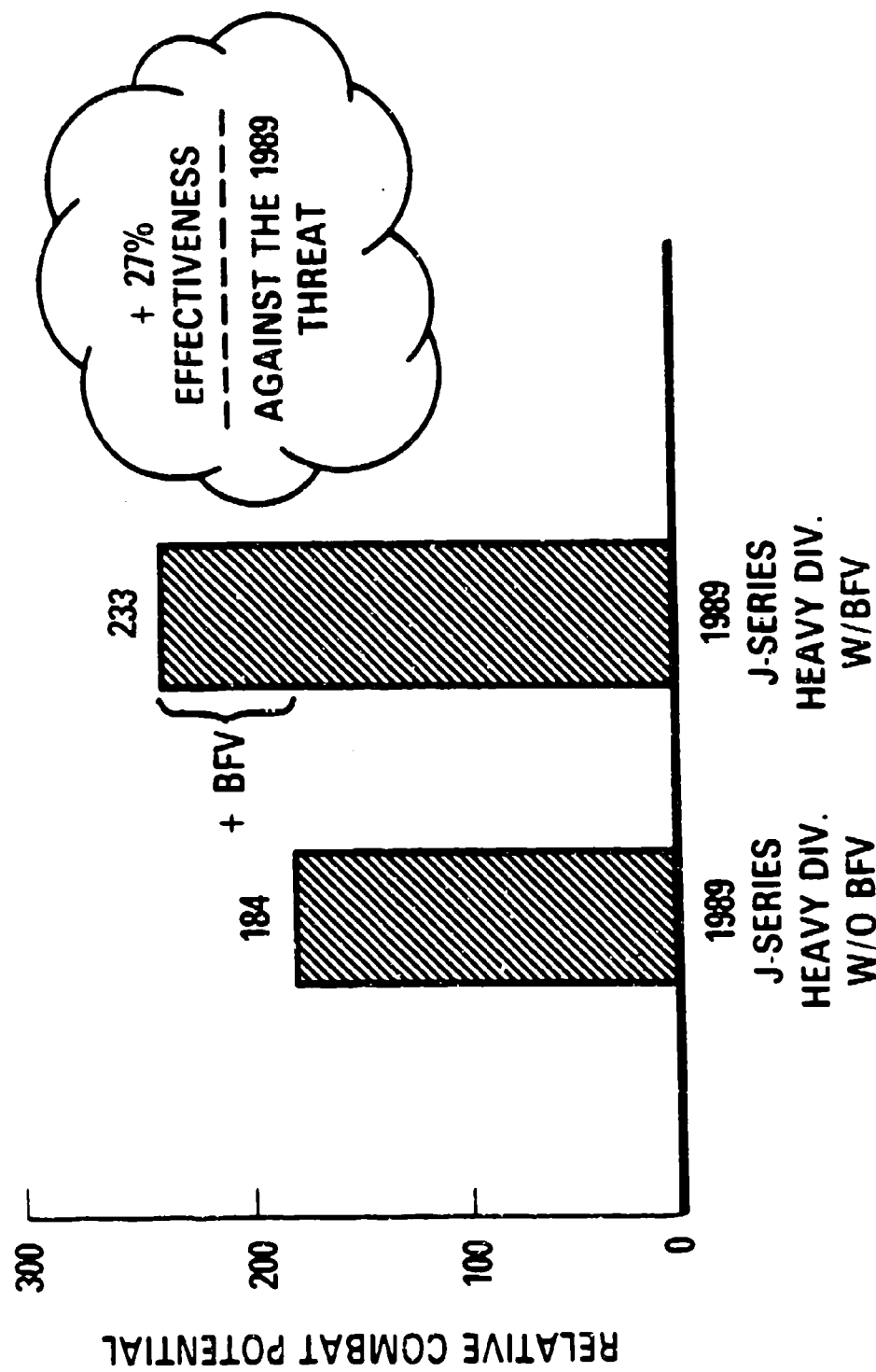
OCCURRENCE OF FUEL FIRES

SHOTS - 3
4

DETERMINE OVER PRESSURE AND SHOCK EFFECTS

SHOTS - 8
9

EFFECT OF FIELDING CURRENT BRADLEY IN A HEAVY U.S. DIVISION



... AND WITH SURVIVABILITY ENHANCEMENTS ... EVEN MORE!

JOINT LIVE FIRE TESTING SCHEDULE FY86-FY90

SYSTEM SUBSYSTEMS TESTED

F-15 FUEL SYSTEMS

F-16 PROPULSION

F-18 FLIGHT CONTROLS

AV-8B STRUCTURES

A-6 E/F

UH-60

AH-64

JOINT FORCE DEVELOPMENT PROCESS

- ORIGINAL 31 JOINT INITIATIVES
NOW 35-OVER 50% IMPLEMENTED
- ARMY, NAVY AND AIR FORCE PARTICIPATE
- DIRECT SUPPORT TO THE COMBATANT CINCS
- COMPLEMENT RATHER THAN DUPLICATE
CAPABILITIES
- INCREASE TOTAL FORCE EFFECTIVENESS
- \$1 BILLION COST AVOIDANCE

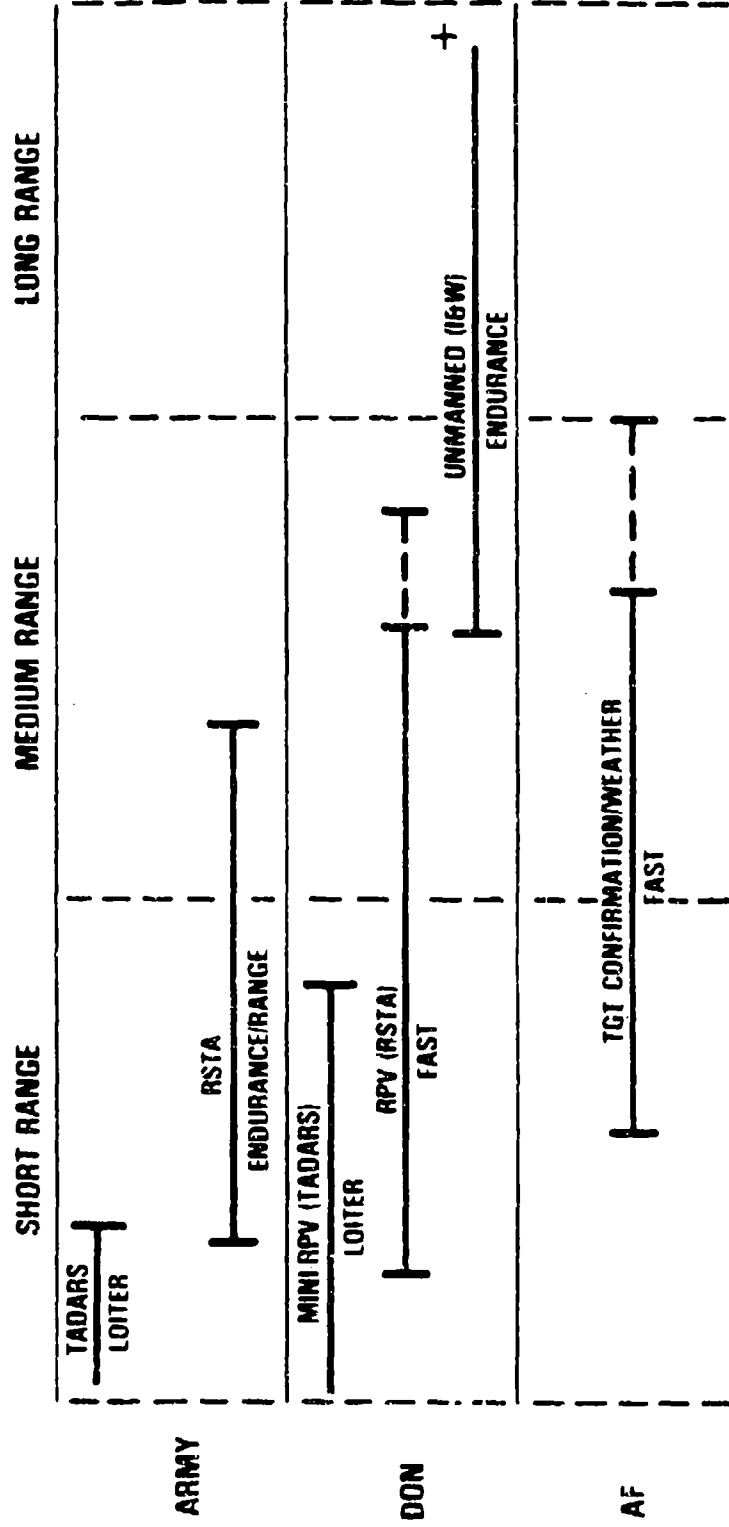
JOINT REQUIREMENTS AND MANAGEMENT BOARD (JRMB)

- **FORMED MAR '84**
- **COMPOSED OF FOUR STAR VICE CHIEFS OF THE
SERVICES AND DIRECTOR JOINT CHIEF**
- **HIGH LEVEL BODY TO SLICE THRU AND FORM/MANAGE
JOINT PROGRAMS**
- **HANDLE INTERDICTION WEAPONS: RECONNAISSANCE-
REMOTELY PILOTED VEHICLES; COMBAT
IDENTIFICATION SYSTEM; AND OTHERS**

JRMB ACTIVITY

- MK XV COMBAT IDENTIFICATION SYSTEM (CIS)
- INTERDICTION WEAPONS SYSTEMS
 - JSTARS/JTACMS/ATACMS
 - RECONNAISSANCE RPVs
 - RPV PAYLOADS AND DATA LINKS
- EW COMMONALITY/JOINT PROGRAMS
- SPACE-BASED RADAR/INFRARED (SBR/IR)
- WWMCCS INFORMATION SYSTEM (WIS)
- TACTICAL MILITARY DECEPTION (TAC-D)
- HIGH FREQUENCY ANTI-JAM COMMUNICATIONS (HFAJ)
- INSENSITIVE MUNITIONS (IM)
- LONG RANGE AIR TO AIR MISSILE (LRAAM)
- MICROWAVE LANDING SYSTEM (MLS)

SERVICE RECONNAISSANCE RPV REQUIREMENTS



FLOT
FEBA
DATUM

• NOTE:

TADARS = TARGET ACQUISITION DESIGNATION & RECONNAISSANCE SYSTEM

RSTA = RECONNAISSANCE SURVEILLANCE & TARGET ACQUISITION

MARK 46 TORPEDO PRODUCTION CASE STUDY

ISSUES: ?

- COST FOR 10-FOLD INCREASE IN PRODUCTION
- HOW QUICKLY CAN RAMP-UP BE ACHIEVED
- CAN SUBCONTRACTORS SUSTAIN HIGH PRODUCTION

ANALYSIS FORECASTS:

- WORK STATION MANAGEMENT
- REDUCED TESTING
- SPARE PARTS ON LINE

RESULTS:

- PRODUCTION TIME DROPS 27 TO 2 WEEKS
- PROCESS "WAITS" DROPS 92% TO 50%
- TEST EQUIPMENT COST DROP \$22M TO \$7M
- RAMP-UP TIME DROPS 96 TO 20 WEEKS

SOURCE: CENTER FOR NAVAL ANALYSIS

TANK PRODUCTION MOBILIZATION

ISSUE: 24 MONTHS TO MOBILIZATION PRODUCTION LEVELS

6 - 7 MONTHS TO SURGE LEVELS

SHORTFALLS: PLANT FACILITIZATION NOT COMPLETED

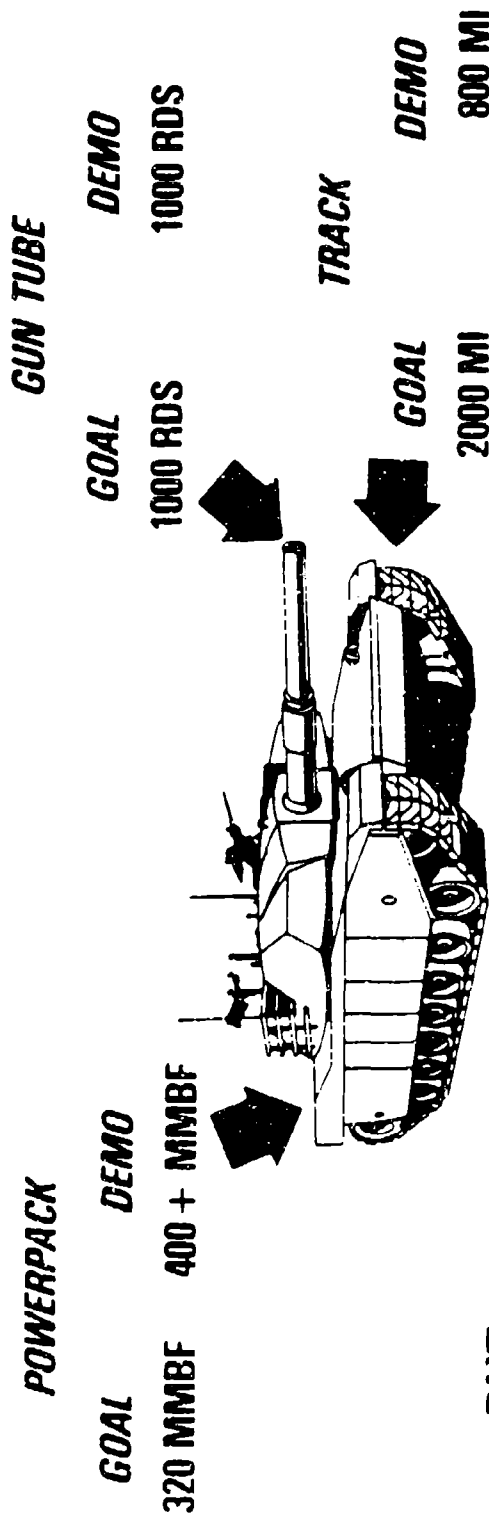
SHORT COMPONENT PARTS

- ENGINES (BEARINGS)**
- FIRE CONTROL (CRYSTALS)**

... AND WHAT ABOUT OVERSEAS SUB TIER VENDORS?

**... AND CAN WE REDUCE SPECIFICATIONS BASED ON
PREDICTED BATTLE LIFE TO SPEED PRODUCTION?**

M-1 PEACETIME COMPONENT PERFORMANCE GOAL VS. DEMONSTRATED



BUT

WARTIME - COMBAT LIFE ESTIMATES ARE 400-500 MILES

TRAINING DEVICE STRATEGY

OBJECTIVE: DEVELOP A HIERARCHY OF TRAINING SIMULATIONS TO PROVIDE MORE REALISTIC AND MORE EFFICIENT TRAINING

NEEDS:

- **AUTOMATION:** TO SAVE \$, MOVE PEOPLE FROM SUPPORT GROUP TO TRAINING AUDIENCE
- **STANDARDS OF PERFORMANCE**
- **SEVERAL VERSIONS AT CORPS AND ECHELONS ABOVE CORPS**
 - CPX DRIVER
 - STAFF TRAINER
 - OPLAN ANALYZER

| ECHELON | COMPUTER SUPPORTED SIMULATIONS | THE REAL THING |
|---------|-----------------------------------|--|
| CORPS | JESS | JSTARS/TR-1/TENCAP |
| DIV | JESS* | ASAS |
| BDE | ARTBAS* JANUS* | MCS/TACTICAL USER TERMINAL (AQUILA, JSTARS, GSM) |
| BN | BABAS (MACE) JANUS | AFATADS/SNORAD C2 |
| CD | SIMNET | MCS/MCS |
| TANK | TANK | VETROMCS/INTEGRATED MMES COMPUTER GENERATED IMAGERY |

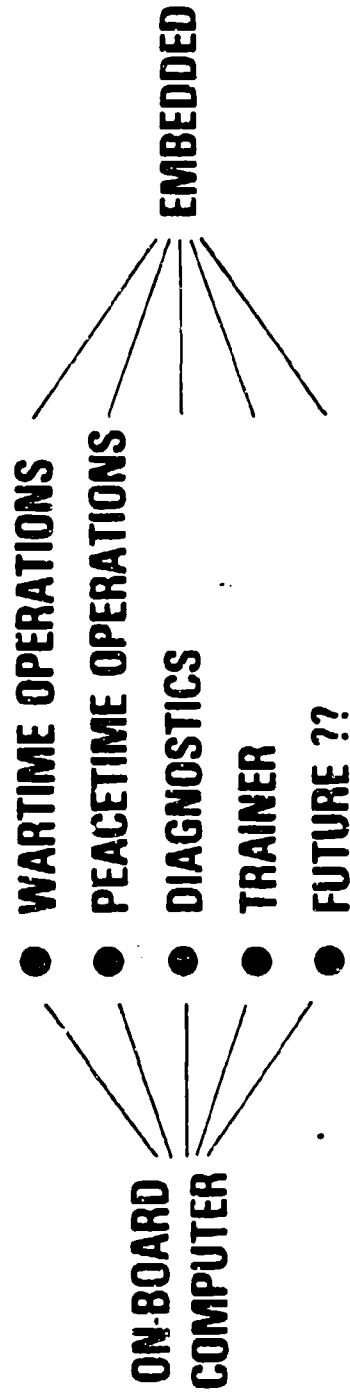
* CONSIDERED FOR APPLICATION

EXPERT SYSTEMS

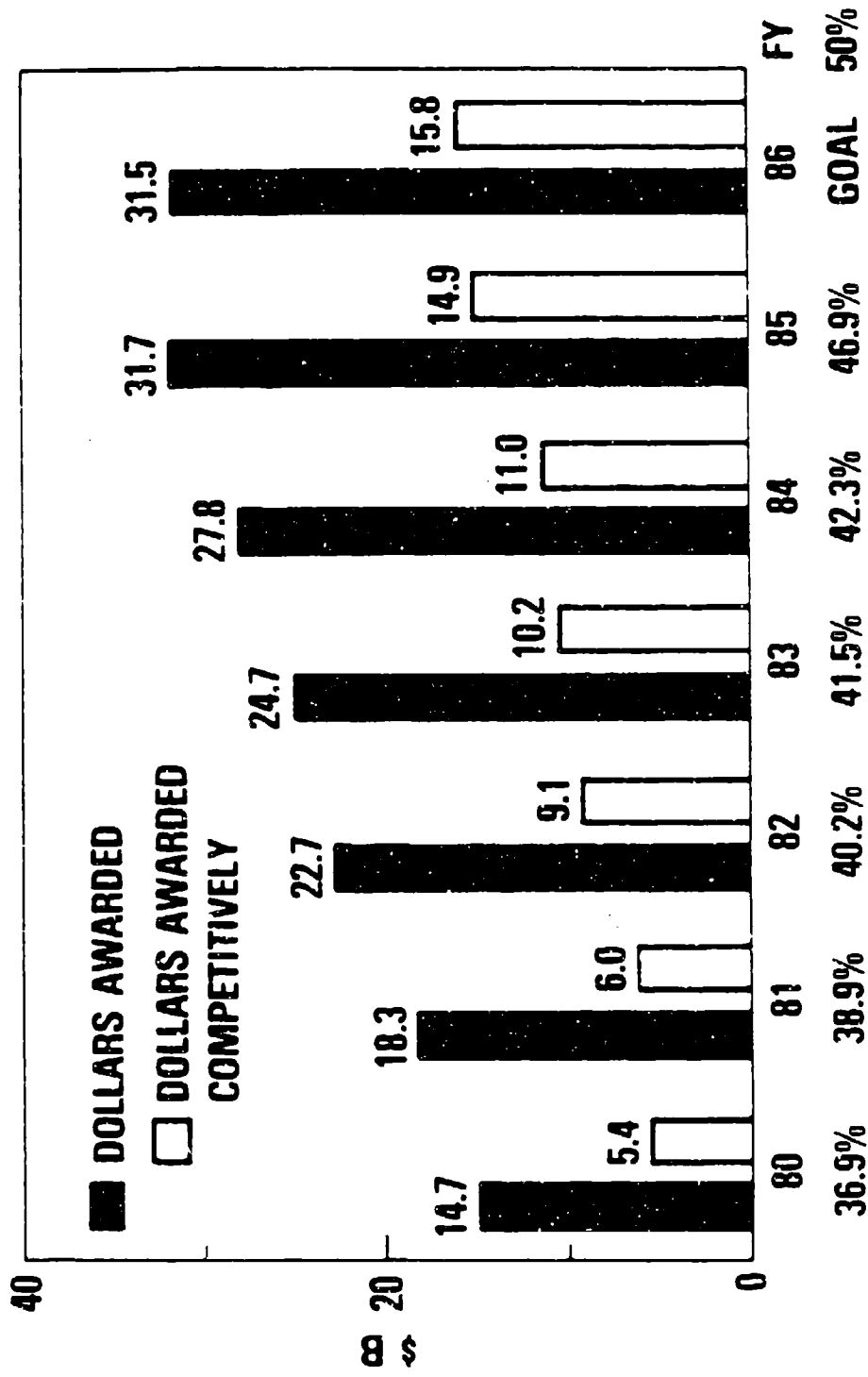
- GIVEN:
- PEOPLE ARE EXPENSIVE
 - COMPUTERS ARE CHEAP
 - *EVERYTHING* HAS A COMPUTER IN IT

QUESTION: HOW TO USE COMPUTER TO CAPACITY?

ANSWER: EXPERT SYSTEMS! EXPERT ON A CHIP!



COMPETITION PERFORMANCE



CONTRACT CLOSE OUT

ARMY AUDIT AGENCY

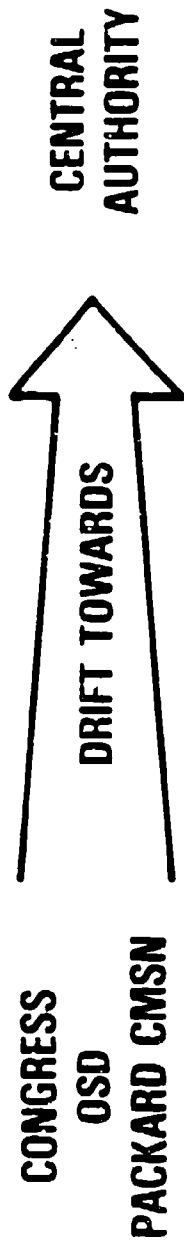
10 CONTRACTORS

10 INSTALLATIONS

CONTRACTOR RESULTS

| <u>TYPE</u> | <u>CLOSE OUT (FAR)</u> | <u>CONTRACTS COMPLETED NOT CLOSED</u> |
|--|------------------------|---|
| FIRM FIXED-PRICE | 6 MONTHS | <u>2,230</u> OF 5,699 \$3.6B |
| OTHER FIXED-PRICE | 20 MONTHS | <u>117</u> OF 305 \$304M |
| COST REIMBURSEMENT & FIXED PRICE INCENTIVE | 36 MONTHS | <u>330</u> OF 1258 \$2.9B |

DOD ACQUISITION



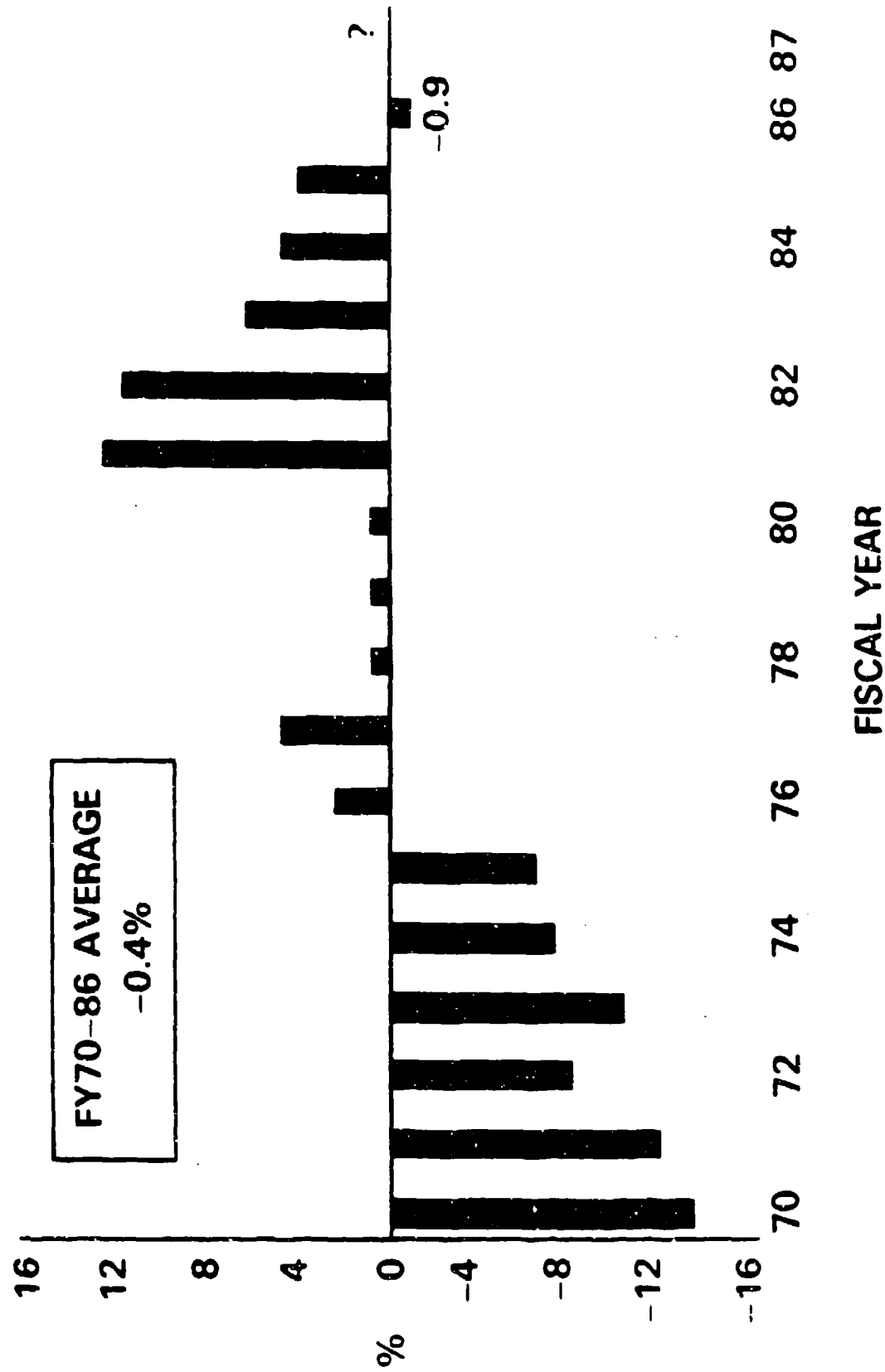
EMPHASIS ON:

- HIGH QUALITY
- HIGH TECH
- STREAMLINING
- ACCOUNTABILITY
- BUSINESS APPROACH

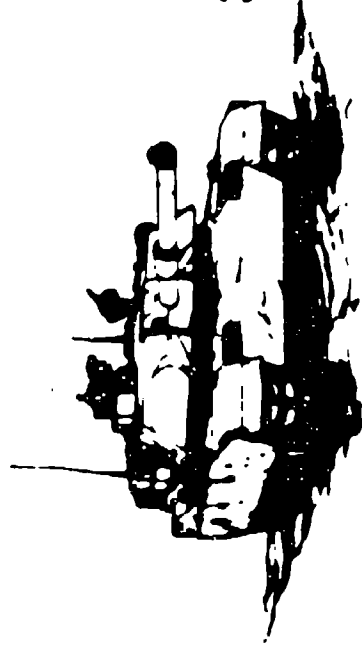
IN ALL AREAS:

- PEOPLE
- ORGANIZATION
- REQUIREMENTS
- MANUFACTURING
- TESTING

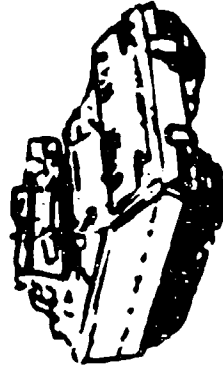
ARMY REAL GROWTH TRENDS



READINESS IMPROVEMENTS 1980 VS 1986



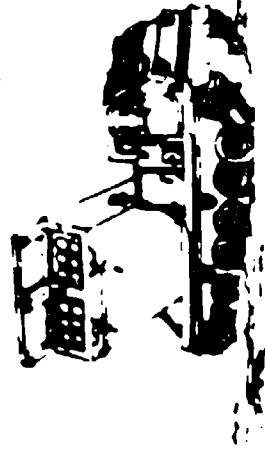
3800 M1 TANKS



2550 NEW FIGHTING VEHICLES

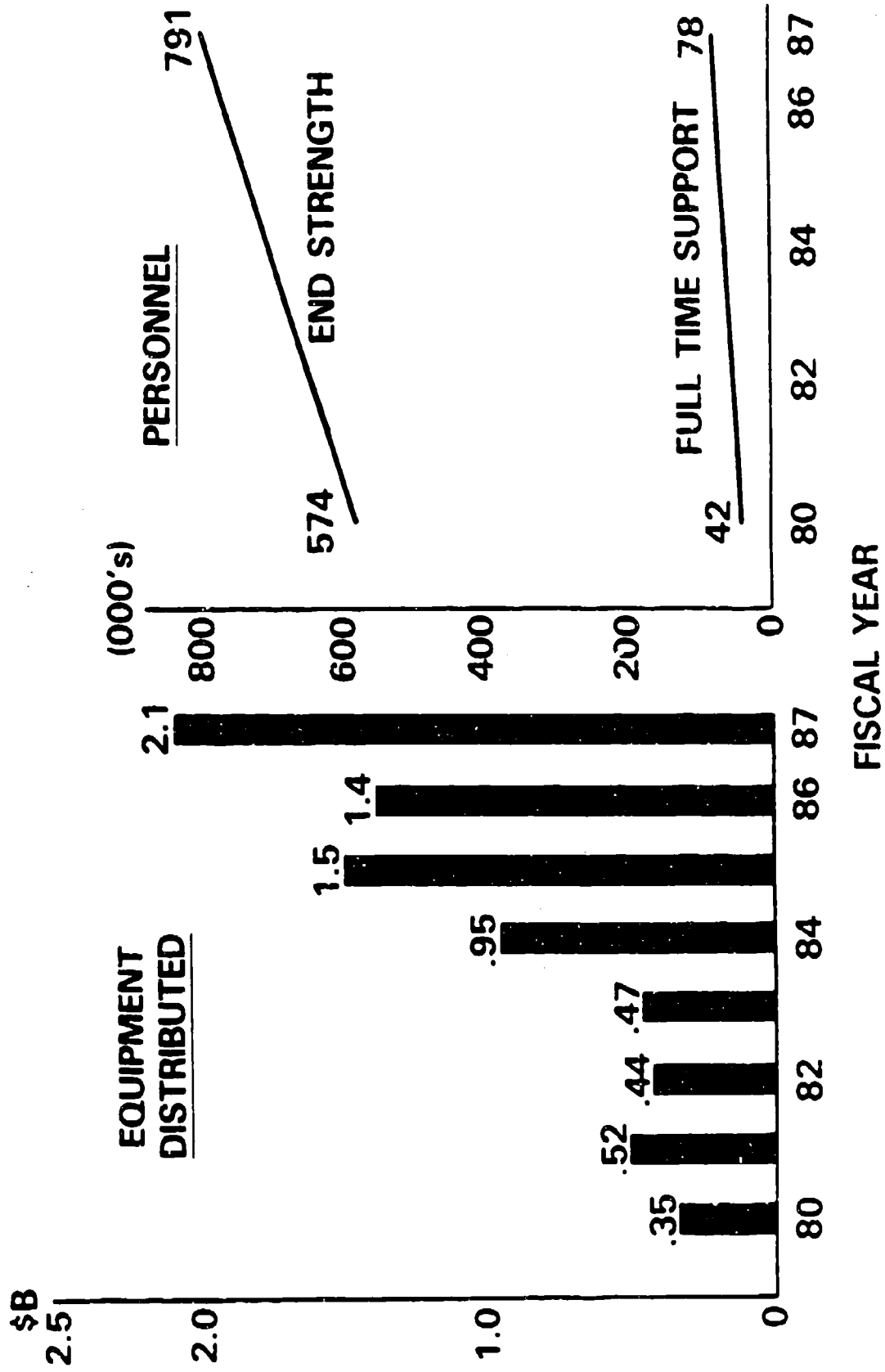


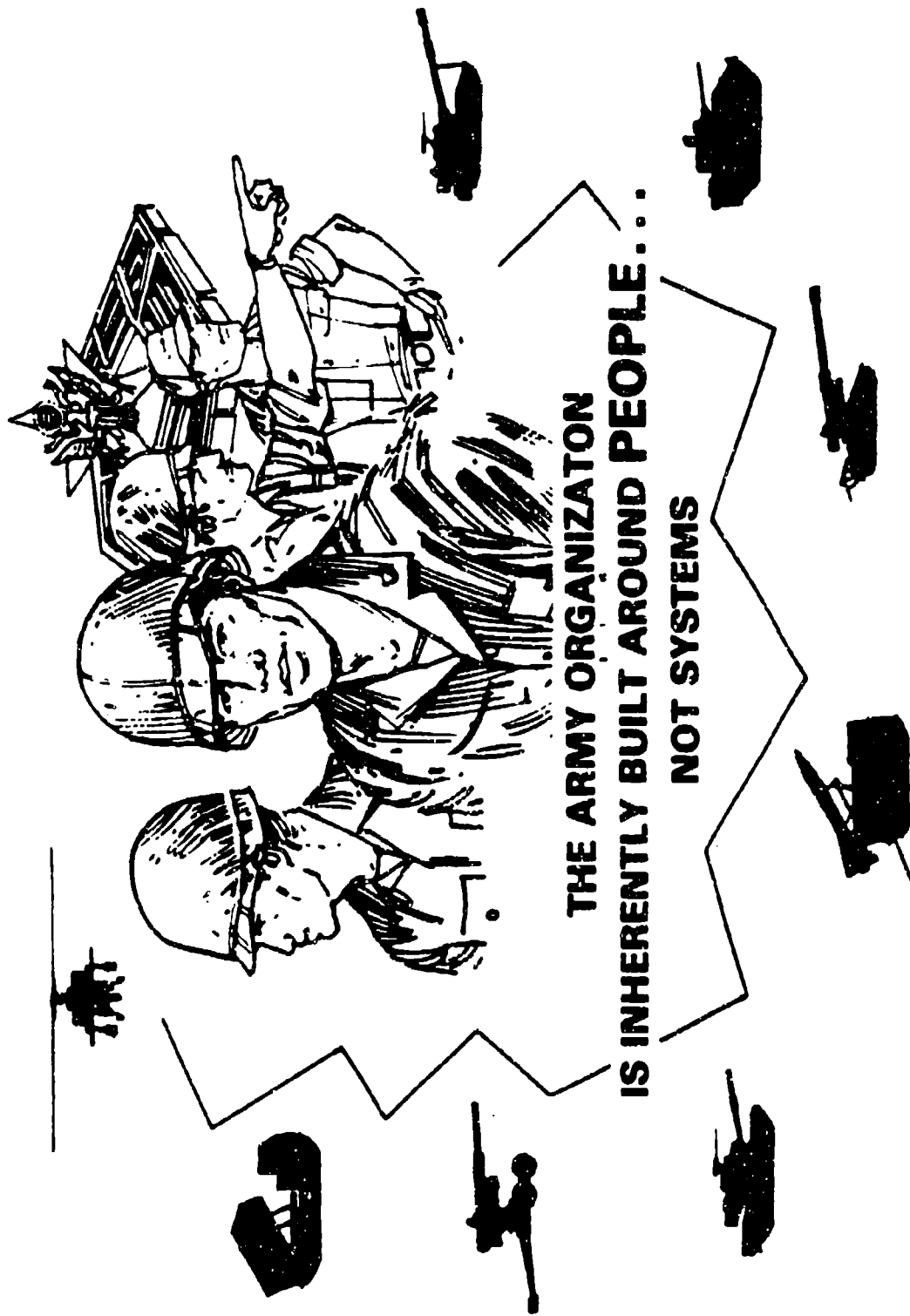
790 NEW UTILITY HELICOPTERS



300 NEW ROCKET LAUNCHERS

RESERVE COMPONENTS

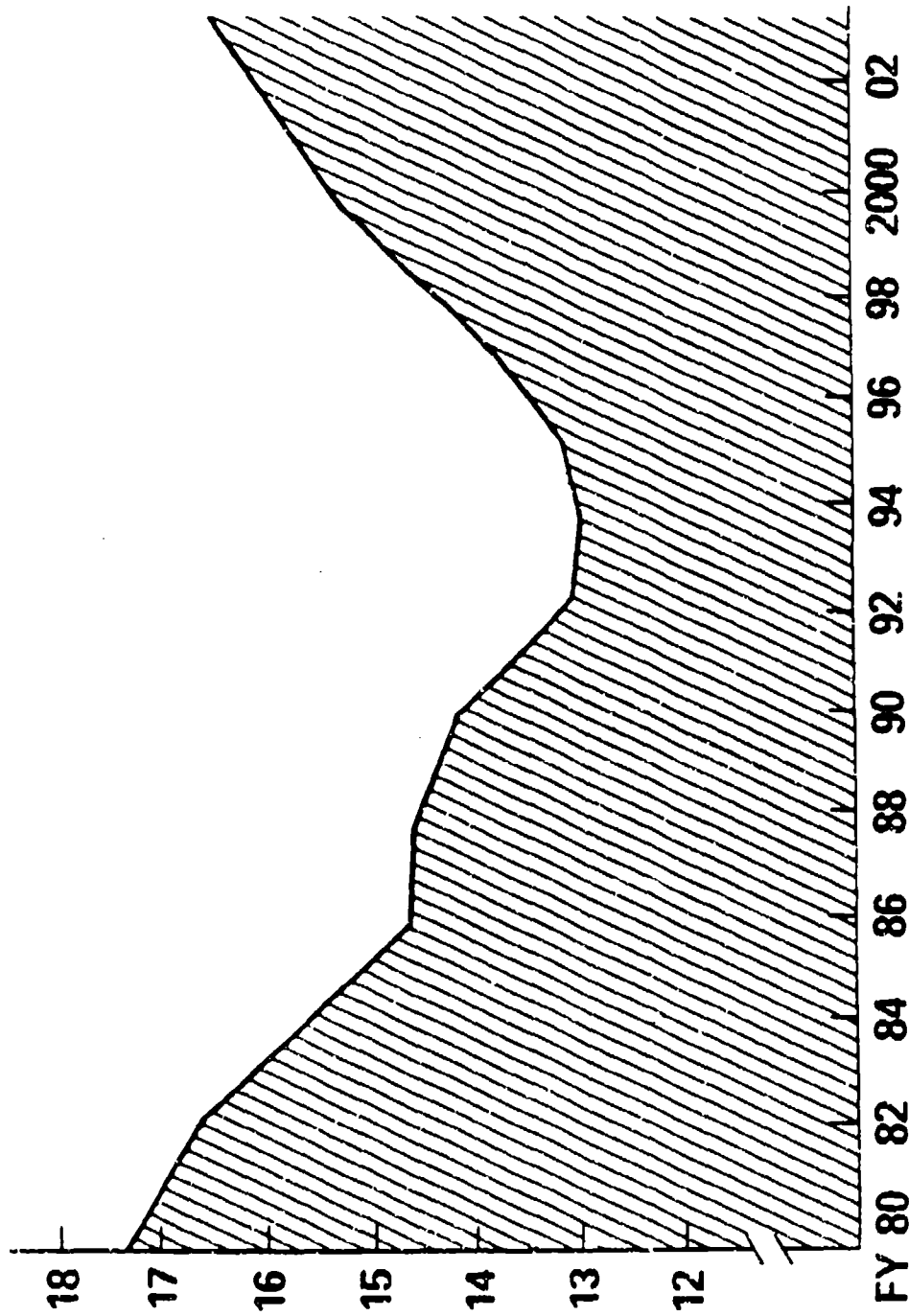




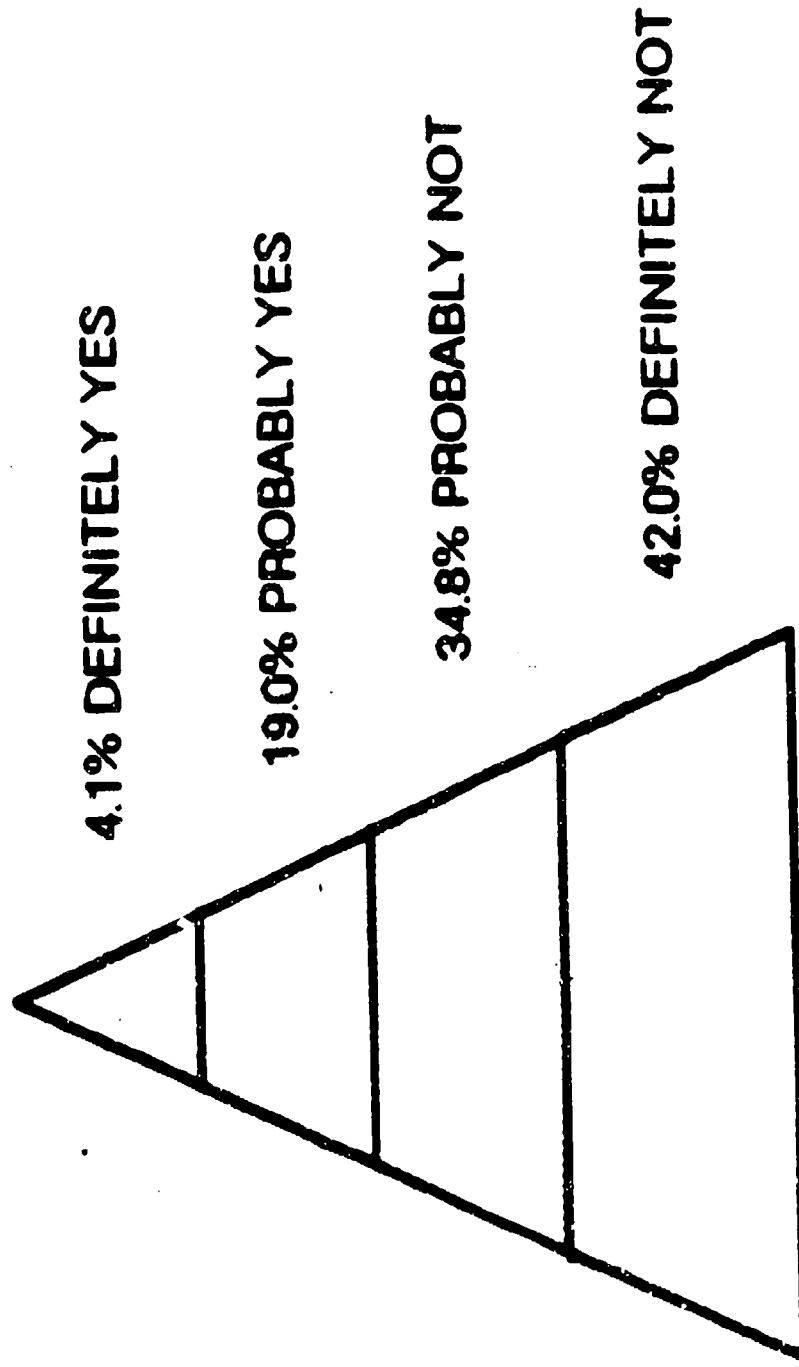
DECLINING MARKET

TOTAL 17-20 YR OLD MARKET

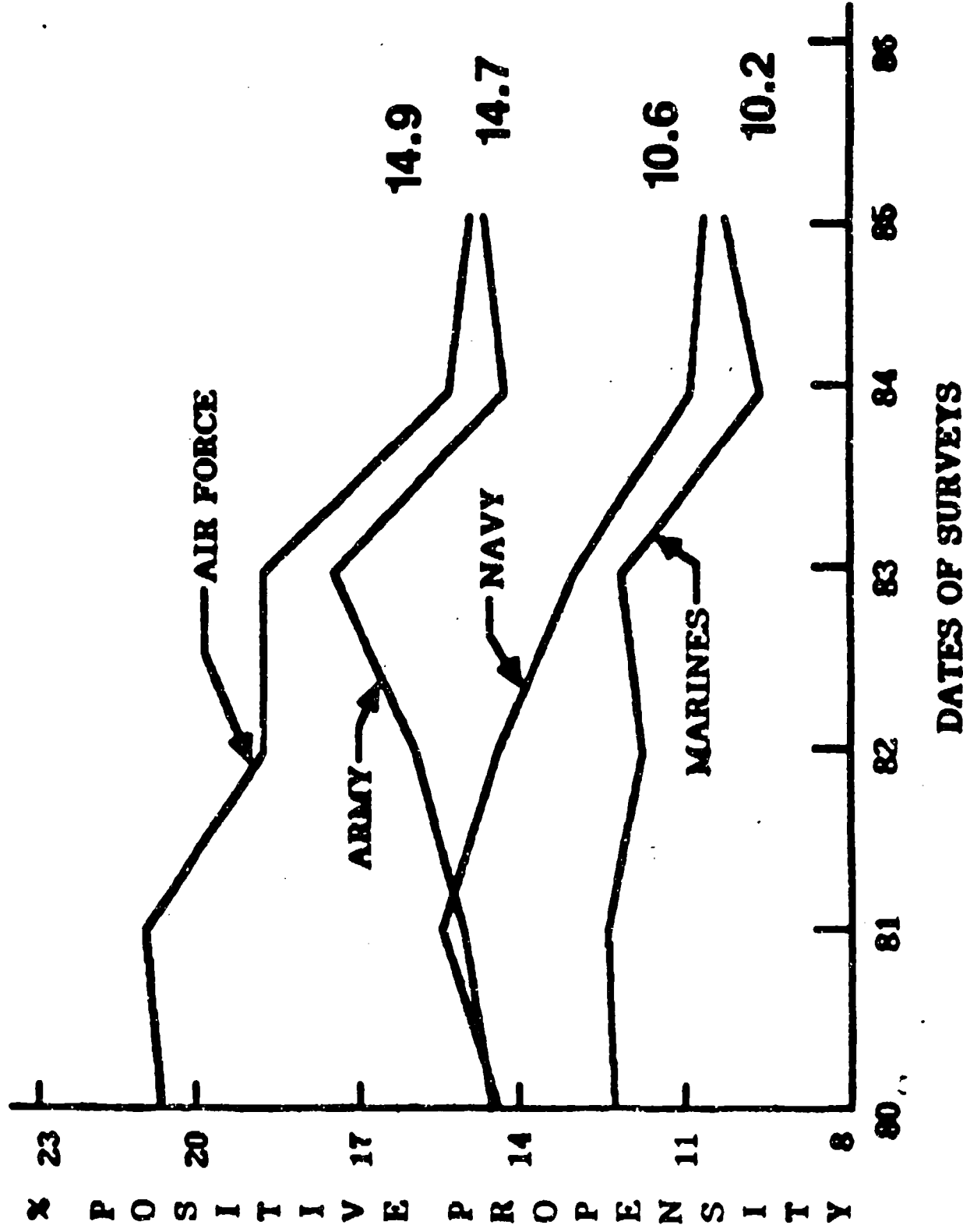
IN MILLIONS



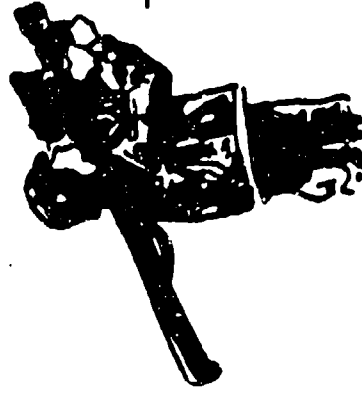
SUPPLY AND DEMAND
—PROPENSITIES
16—21 YEAR OLD MALE HSDG/SENIORS



TRENDS IN POSITIVE PROPENSITY YATS II FALL SURVEY (REWEIGHTED)



WHY THE ARMY NEEDS QUALITY PEOPLE



- AIR DEFENSE:
SHORAD GUNNERS
SUCCESSFUL ENGAGEMENTS
(TRASANA - 1980)

AFQT TEST CATEGORY
I-III A III B IV

67% 52% 48%



- ARMOR:
RATE AT WHICH US CREWS
DESTROY OPPOSING TANKS
(CANADIAN CUP 1981)

7 TO 1 1.5 TO 1



- INFANTRY:
RATE AT WHICH RIFLEMEN
WOUND/KILL OPPOSING
INFANTRY (HUNTER/LIGGET-1984)
(ROUNDED TO WHOLE #)

2 TO 1 1 TO 1 1 TO 1



- ARMOR:
MOS 19E, E1 — E4
PERCENT PASSING SQT
(1983)

94% 92% 79%

TANK CREW PERFORMANCE

| CREW TSC | M60 | | M1 | |
|----------|-------|---------------------------|-------|---------------------------|
| | KILLS | % INCR RELATIVE CAT IV | KILLS | % INCR RELATIVE CAT IV |
| I | 10.23 | 75.2 | 12.75 | 18.9 |
| II | 9.51 | 62.8 | 12.47 | 16.3 |
| → IIIA | 8.52 | 45.9 | 12.05 | 12.4 |
| IIIB | 7.47 | 27.9 | 11.57 | 7.9 |
| IV | 5.84 | — | 10.72 | — |

IIIA CREW ON M1 PERFORMS 41% BETTER THAN IIIA CREW ON M60

NPS ACCESSIONS BY AFQT CATEGORY

(PERCENT)

| AFQT CAT | YOUTH POP | 80 | 82 | 84 | 85 | 86* | USMC 86 | USN 86 | USAF 86 |
|-------------|--------------|----|----|------|------|------|------------|-----------|------------|
| I-III A | 50 | 26 | 53 | 63 | 63 | 63.6 | 66.7 | 60.5 | 75.0** |
| III B | 19 | 22 | 28 | 27 | 28 | 32.4 | 33.2 | 27.5 | 24.4** |
| IV | 21 | 52 | 19 | 10 | 9 | 4.0 | 0.1 | 12.0 | 0.6 |
| HSDG | 74 | 54 | 86 | 90.8 | 90.7 | 91.4 | 98.6 | 85.3 | 99.6 |

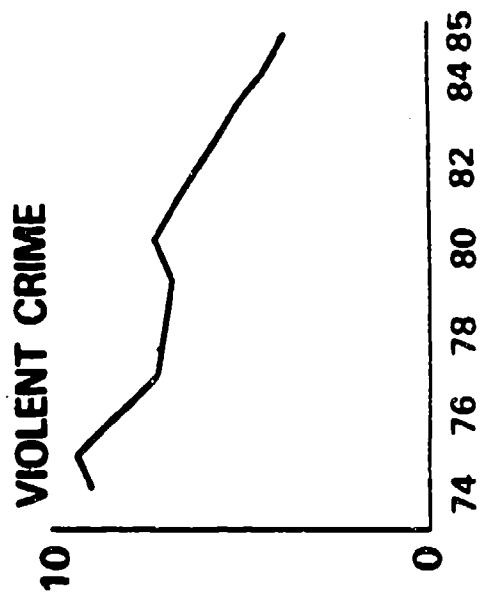
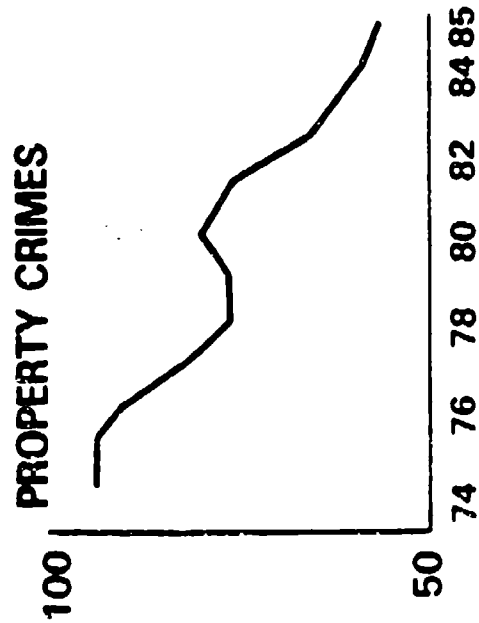
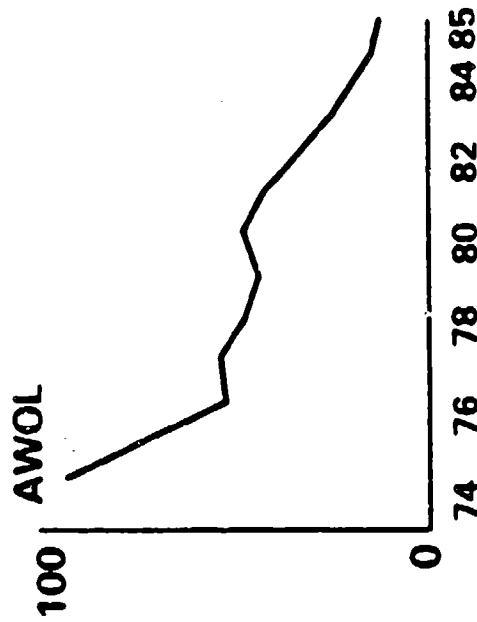
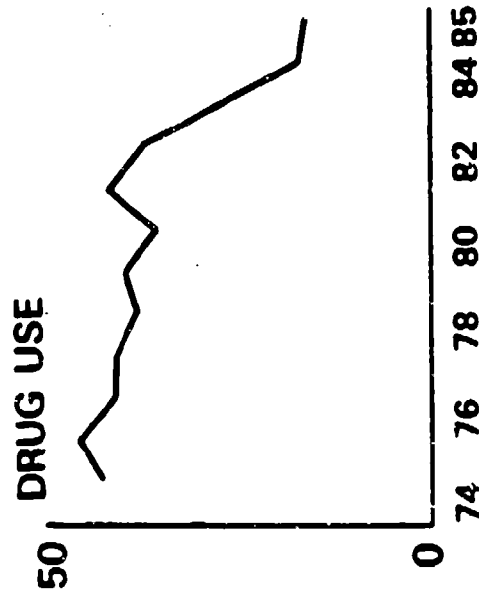
AS OF 21 FEB 86

*INCLUDES DEP

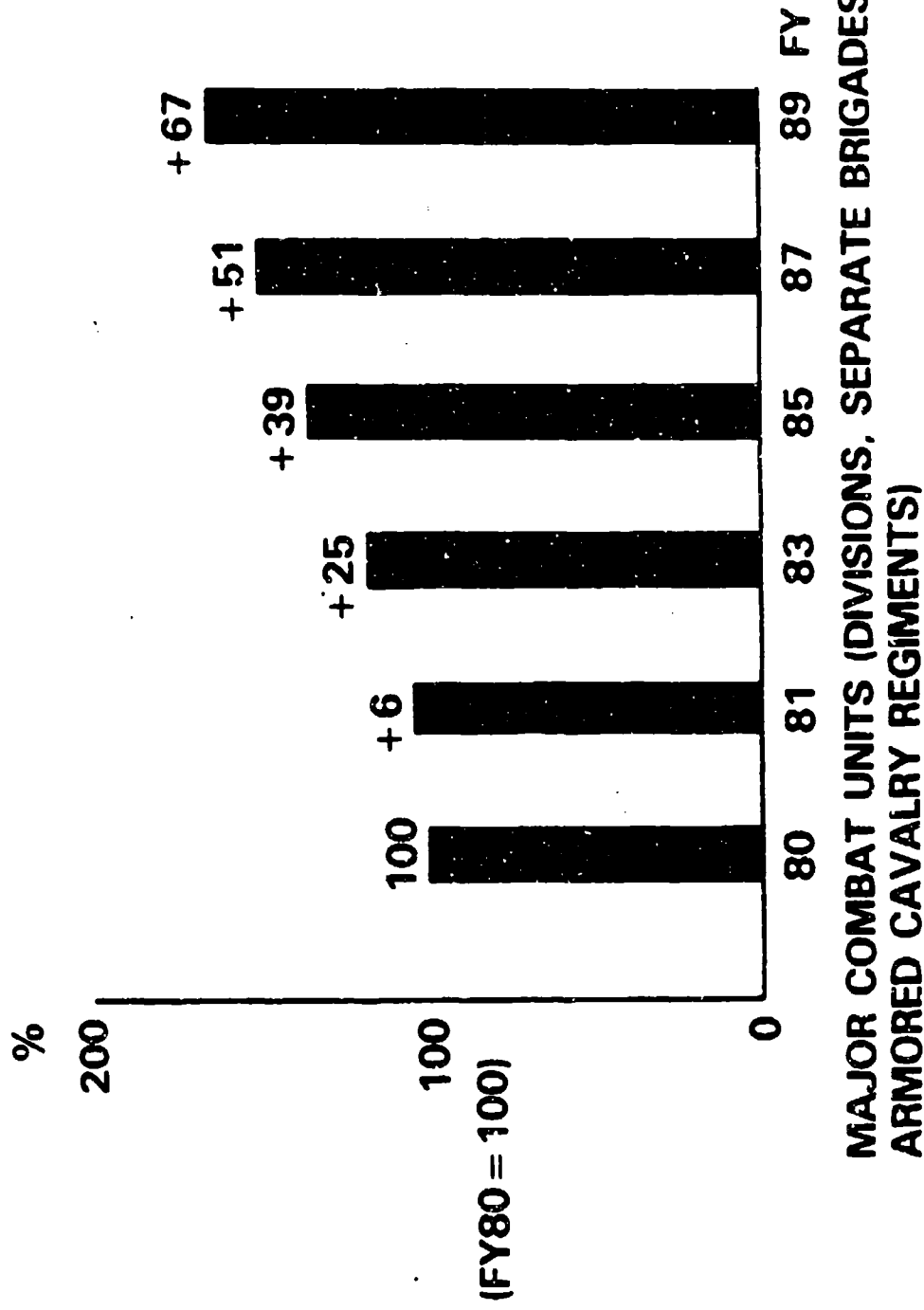
**AF I-III A/III B SPLIT IS ESTIMATED

DISCIPLINE IN THE ARMY

(RATES PER 1000)



TOTAL ARMY MILITARY CAPABILITY IMPROVEMENTS



ARMY THRUSTS

- CONTINUE MODERNIZATION OF HEAVY FORCES..CLOSE BATTLE
- BETTER BALANCE..HEAVY-LIGHT..DEPLOYABILITY IS DETERRENCE
- OPERATIONAL DOCTRINE ... PUBLISHED
 - SEE DEEP: JOINT SURVEILLANCE AND TARGET ATTACK RADAR SYSTEM (JSTARS)
 - INTEL FUSION: ALL SOURCE ANALYSIS SYSTEM (ASAS) ENEMY SITUATION CORRELATION ELEMENT (ENSCE)
 - STRIKE: TACTICAL MISSILE SYSTEM (TACMS) JOINT TACTICAL MISSILE SYSTEM (JTACMS)
- CONTINUE MODERNIZATION OF RESERVE COMPONENT
- PROVIDE TOP QUALITY FORCES...AND TAKE CARE OF FAMILIES
- REVAMP OUR RELATIONSHIP WITH INDUSTRY

